WHAT IS CLAIMED IS:

1. Apparatus for effecting a relative movement between first and second parts which are rotatable relative to each other between a plurality of positions, comprising:

a helix having a plurality of neighboring convolutions and being non-rotatably associated with said first part;

a follower affixed to said second part and arranged to extend between at least two of said neighboring convolutions;

means for rotating at least one of said parts relative to the other of said parts to thus effect a movement of said convolutions and said follower relative to each other;

a further part movable axially with and relative to said first part; and

coupling means arranged to separably connect said further part to said first part except in at least one position of said second part relative to said first part.

2. The apparatus of claim 1, wherein said second part is movable axially relative to said first part and said coupling means is operative to connect said further part to said first part during a first stage and to permit disconnection of said further part from said first part during a second stage of axial movement of said second part relative to said first part.

3. The apparatus of claim 2, wherein said coupling means includes a springy clamp which is movable at least substantially radially of said second part.

4. The apparatus of claim 3, wherein said clamp is pivotable relative to said second part.

5. The apparatus of claim 1, wherein said further part includes a projection which is engaged by said coupling means when said further part is connected to said first part.

6. The apparatus of claim 1, wherein said coupling means includes a springy clamp having an offset portion.

7. The apparatus of claim 1, wherein said second part is movable axially relative to said first part and said coupling means comprises a springy clamp which is movable at least substantially radially of said second part, and further comprising an abutment positioned to prevent radial movements of said clamp except in said at least one position of said second part relative to said first part.

8. The apparatus of claim 7, wherein said abutment is arranged to mintain said clamp in a position in which said further part is connected to said first part except in said at least one position of said second part relative to said first part.

9. The apparatus of claim 8, wherein said abutment is disengaged from said clamp in said at least one position of said second part relative to said first part.

10. The apparatus of claim 7, further comprising at least one pin engaged by said abutment and extending at least substantially circumferentially of said helix.

11. The apparatus of claim 10, wherein said abutment comprises tongues engaging and fixing said at least one pin relative to said abutment.

12. The apparatus of claim 1, wherein said further part includes a release bearing for a clutch.

13. Apparatus for effecting a relative movement between first and second parts which are rotatable relative to each other between a plurality of positions, comprising:

a helix having a plurality of neighboring convolutions and being non-rotatably associated with said first part;

a follower affixed to said second part and including a plurality of rolling elements arranged to extend between at least two of said neighboring convolutions; and

means for rotating at least one of said parts relative to the other of said parts to thus effect a movement of said convolutions and said follower relative to each other.

14. The apparatus of claim 13, wherein at least some of said rolling elements are spheres.

15. The apparatus of claim 14, wherein each of said spheres includes an equatorial portion and a second portion arranged to contact said helix.

16. The apparatus of claim 14, wherein said spheres are confined to movement along one of a plurality of paths including a circular path and an oval path.

17. The apparatus of claim 13, wherein said convolutions have one of cross-sectional outlines including a circular and a non-circular outline.

18. The apparatus of claim 13, wherein said convolutions are disposed radially outwardly of said rolling elements.

19. The apparatus of claim 13, wherein said rolling elements are disposed outwardly of said convolutions as seen in a radial direction of said helix.

20. The apparatus of claim 13, further comprising a prestressing spring arranged to take up torque being applied to said first part by said follower when one of said follower and said helix turns relative to the other thereof.

21. The apparatus of claim 13, wherein said means for rotating includes external drive means.

22. The apparatus of claim 21, wherein said external drive means includes at least one wheel and at least one endless flexible element trained over said at least one wheel.

23. The apparatus of claim 22, wherein said endless flexible element includes a cable.

24. The apparatus of claim 22, wherein said endless flexible element includes at least one of a V-belt, a belt having an at least substantially circular cross-sectional outline, a toothed belt, a toothed belt having an at least substantially circular or oval cross-sectional outline and a chain.

25. The apparatus of claim 13, wherein said means for rotating includes mating gears.

26. The apparatus of claim 25, wherein said second part includes a sleeve, at least one of said gears and a bearing for said second part being disposed within said sleeve.

27. The apparatus of claim 25, wherein said second part includes a sleeve and at least one of said gears as well as a bearing for said second part are disposed externally of said sleeve.

28. The apparatus of claim 13, wherein said means for rotating includes mating gears, at least one of said gears and a bearing for said second part being aligned with a prestressing spring arranged to take up torque being applied to said first part by said follower when one of said follower and said helix turns relative to the other thereof.

29. The apparatus of claim 13, wherein said means for rotating includes mating gears together constituting a multistage gearing.

30. The apparatus of claim 13, wherein said means for rotating includes mating gears and said mating gears include at least one internal gear.

31. The apparatus of claim 13, wherein said means for rotating includes a fluid-operated motor.

32. The apparatus of claim 31, further comprising means for blocking said motor.

33. The apparatus of claim 32, wherein said means for rotating further includes a component comprising one of (a) mating gears and (b) at least one wheel and an endless flexible element trained over said wheel, said motor being directly connected with said component.

34. Apparatus for effecting a relative movement between first and second parts which are rotatable relative to each other between a plurality of positions, comprising:

a helix having a plurality of neighboring convolutions and being non-rotatably associated with said first part;

an eccentric rotary follower associated with said second part and arranged to extend between at least two of said neighboring convolutions; and

means for rotating at least one of said parts relative to the other of said parts to thus effect a rotary movement of said follower relative to said convolutions.

35. The apparatus of claim 34, wherein said eccentric has a circular peripheral surface.

36. The apparatus of claim 35, wherein said follower is rotatable about an axis of rotation which is spaced apart from a central point of the follower.

37. The apparatus of claim 36, wherein said follower has an axis of symmetry which is inclined relative to said axis of rotation.

38. The apparatus of claim 36, wherein said axis of symmetry crosses in space said axis of rotation.

39. The apparatus of claim 34, wherein said follower comprises an inner disc and an annular outer disc spacedly surrounding said inner disc.

40. The apparatus of claim 39, wherein said annular outer disc has an at least substantially constant width as measured in the radial direction thereof.

41. The apparatus of claim 39, wherein said follower further comprises a bearing between said discs.

42. The apparatus of claim 41, wherein said bearing comprises antifriction rolling elements.

43. The apparatus of claim 42, wherein said rolling elements include spheres.

44. The apparatus of claim 34, further comprising a clutch release bearing and means for releasably coupling said release bearing to one of said parts.

45. A plurality of apparatus each adapted to actuate a discrete clutch, each of said apparatus being arranged to effect a relative movement between first and second parts which are rotatable relative to each other between a plurality of positions and each of said apparatus comprising:

a helix having a plurality of neighboring convolutions and being non-rotatably associated with the first part of the respective apparatus;

a follower borne by the second part of the respective apparatus and arranged to extend between at least two of said neighboring convolutions;

means for rotating at least one part relative to the other part of the respective apparatus to thus effect a movement of said convolutions and said follower relative to each other;

a further part movable axially with and relative to the first part of the respective apparatus; and

coupling means arranged to separably connect said further part to the first part except in at least one position of the second part relative to the first part of the respective apparatus.

46. The structure of claim 45, wherein the discrete clutches form part of a twin clutch.

47. The apparatus of claim 46, wherein said twin clutch forms part of a power train in a motor vehicle.

48. The structure of claim 45, wherein each of said apparatus further comprises a first arrangement of rolling elements with a first bearing sleeve and a second arrangement of rolling elements with a second bearing sleeve coaxial with and surrounding the first bearing sleeve.

49. The strucrure of claim 48, wherein at least one of said bearing sleeves includes a gear.

50. The structure of claim 49, further comprising at least one second gear mating with said gear of said at least one bearing sleeve.

51. The structure of claim 50, wherein said gears are coaxial with each other.

52. The structure of claim 51, further comprising coaxial shafts mounting said coaxial gears.

53. The structure of claim 45, wherein said further part of each of said apparatus constitutes a release bearing of the respective clutch.

54. A plurality of apparatus each adapted to actuate a discrete clutch, each of said apparatus being arranged to effect a relative movement between first and second parts which are rotatable relative to each other between a plurality positions and each of said apparatus comprising:

a helix having a plurality of neighboring convolutions and being non-rotatably associated with the first part of the respective apparatus;

a follower affixed to the second part of the respective apparatus and including a plurality of rolling elements arranged to extend between at least two of said neighboring convolutions; and

means for rotating at least one of the parts relative to the other part of the respective apparatus to thus effect a movement of said convolutions and said follower relative to each other.

55. The structure of claim 54, wherein the discrete clutches form part of a twin clutch.

56. The structure of claim 55, wherein said twin clutch forms part of a power train in a motor vehicle.

57. The structure of claim 54, wherein each of said apparatus further comprises a first arrangement of rolling elements with a first bearing sleeve and a second arrangement of rolling elements with a second bearing sleeve coaxial with and surrounding the first bearing sleeve.

58. The structure of claim 57, wherein at least one of said bearing sleeves includes a gear.

59. The structure of claim 58, further comprising at least one second gear mating with said gear of said at least one bearing sleeve.

60. The structure of claim 59, wherein said gears are coaxial with each other.

61. The structure of claim 60, further comprising coaxial shafts mounting said coaxial gears.

62. A plurality of apparatus each adapted to actuate a discrete clutch, each of said apparatus being arranged to effect a relative movement between first and second parts which are rotatable relative to each other between a plurality of positions and each of said apparatus comprising:

a helix having a plurality of neighboring convolutions and being non-rotatably associated with the first part of the respective apparatus;

an eccentric rotary follower associated with the second part of the respective apparatus and arranged to extend between at least two of said neighboring convolutions; and

means for rotating at least one of the parts relative to the other part of the respective apparatus to thus effect a rotary movement of one of said follower and the respective convolutions relative to the other thereof.

63. The structure of claim 62, wherein the discrete clutches form part of a twin clutch.

64. The structure of claim 63, wherein said twin clutch forms part of a power train in a motor vehicle.

65. The structure of claim 62, wherein each of said apparatus further comprises a first arrangement of rolling elements with a first bearing sleeve and a second arrangement of rolling elements with a second bearing sleeve coaxial with and surrounding the first bearing sleeve.

66. The structure of claim 65, wherein at least one of said bearing sleeves includes a gear.

67. The structure of claim 66, further comprising at least one second gear mating with said gear of said at least one bearing sleeve.

68. The structure of claim 67, wherein said gears are coaxial with each other.

69. The structure of claim 68, further comprising coaxial shafts mounting said coaxial gears.